

# EXHIBIT A

## ***RESUME***

### **R.William Kreutel**

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### **Education**

**Doctor of Science**, Electrical Engineering, The George Washington University,  
Washington, D.C. 1978

**Master of Science**, Electrical Engineering, Northeastern University, Boston, MA 1964

**Bachelor of Science**, Electrical Engineering, Northeastern University, Boston, MA 1961

### **Professional Experience**

#### **Consulting Engineer** (3 years)

*Consulting engineer in antennas, phased arrays and radiating systems*

#### **Teledesic** (6 years)

*Chief Antennas Architect*

- Responsible for all spacecraft and earth terminal antenna technology.
- High gain, Ku Band multiple beam, lens antennas (2-D and 3-D bootlace and dielectric lenses) for space application
- Multi-beam, active aperture, Ka Band phased array antennas for space application
- Low cost, wide angle scan, Ku/Ka Band phased array antenna user terminals

#### **Motorola Satcom Division** (4 years)

*Program Manager*

- Managed the development of the IRIDIUM spacecraft antenna systems
  - + Main Mission Antenna – L Band, active aperture, multiple beam array antenna
  - + Crosslink antennas – Ka Band flat plate slot array antennas
  - + Gateway antennas – Ka Band mechanically steerable, dual reflector antennas
- Ka Band phased array antenna development for user terminals (Celestri)
- Digital beam forming studies

#### **Electromagnetic Sciences** (4 years)

*Principal Engineer*

- Design/development of lightweight beamforming networks for space application
- Designed the C Band antennas for NASA Aero-brake Flight Experiment
- Antenna design and system engineering support for NASA Microwave Reflecto-meter Ionization Sensor (MRIS)
- Established business group to provide design, development and manufacture of antenna feed systems and beamforming networks for commercial satcom

**Comsat Laboratories (18 years)**

*Manager, Antenna Department*

- Planned and managed Comsat and Intelsat antenna R&D programs
- Contributed to the development of dual polarized, multi-beam antennas for frequency reuse satcom systems
- Development of shaped beam and reconfigurable beam antennas
- Design and development of wideband autotrack systems
- Design and development of polarizing networks, orthomode transducers and adaptive polarization networks
- Contributed to the use of radio star calibration methods (G, G/T) for earth terminal antennas
- Supported Intelsat I, II, III, IV, IVa, V and Comstar satellite programs
- Provided technical advisory service to the international community

*Director, Optical Communications Laboratory*

- Managed research team in developing optical technology for satcom applications
- Design and development of optical switch matrix for SS/TDMA
- Design and development of optical intersatellite links
- Development of optically controlled phased array antennas (including optical beamforming)

*Division Director, Development Engineering*

- Managed and administered production engineering facility
- Responsible for second stage product development and limited quantity production Of components and systems
- Responsible for technology transfer between R&D labs and Comsat affiliated companies

**GTE/Sylvania**

*Research Engineer*

- Participated in the pioneering development of phased array technology (MAR)
- Design and development of low noise, multifrequency earth terminal antenna for early military satcom (ADVENT)
- Design and development of RF feed system (organ pipe scanner) for artillery shell tracking radar (MPQ-32)
- Design and development of HF log periodic antennas for OHD radar (FPS-95)

**Professional Affiliations**

Institute of Electrical and Electronic Engineers (Fellow)

American Institute of Aeronautics and Astronautics (Assoc. Fellow)

International Union of Radio Science (URSI, Commissions A & B)

New York Academy of Science

Eta Kappa Nu

Sigma XI